WHAT IS CLAIMED IS:

1. A transmitter that transmits from a common antenna at a plurality of radio frequencies, a plurality of radio channel frequency signals that are modulated with respective information modulation, the transmitter comprising:

a plurality of modulators, a respective one of which corresponds to a respective one of the plurality of radio channel frequencies, each modulator generating at least one constant amplitude, phase modulated drive signal at the corresponding radio channel frequency from the respective information modulation such that the at least one constant amplitude, phase modulated drive signal corresponds to the information modulation for the corresponding radio frequency;

at least one saturated power amplifier for each of the at least one constant amplitude, phase modulated drive signal that is responsive to the corresponding constant amplitude, phase modulated drive signal to produce a corresponding amplified output signal at an output thereof; and

a coupling network that connects the outputs of the saturated power amplifiers in series to produce a combined signal that is applied to the common antenna, such that the common antenna radiates the plurality of radio channel frequency signals that are modulated with the respective information modulation.

2. A transmitter according to Claim 1 wherein the at least one constant amplitude, phase modulated drive signal is a single constant envelope modulation drive signal and wherein the information modulation is a constant envelope information modulation.

3. A transmitter according to Claim 2 wherein the constant envelope information modulation is at least one of frequency and phase modulation.

4. A transmitter according to Claim 2 wherein the information modulation is at least one of analog voice modulation and digital data modulation.

5. A transmitter according to Claim 4 wherein the analog voice modulation is analog Frequency Modulation (FM).

6. A transmitter according to Claim 4 wherein the digital data modulation is at least one of Continuous Phase Modulation (CPM) and Gaussian Minimum Shift Keying (GMSK).

7. A transmitter according to Claim 5 wherein the analog FM conforms to the AMPS cellular radiotelephone standard.

8. A transmitter according to Claim 6 wherein the GMSK digital data modulation conforms to the GSM cellular radiotelephone standard.

9. A transmitter according to Claim 1 wherein the at least one constant amplitude, phase modulated drive signal is at least two constant amplitude, phase modulated drive signals at the corresponding radio channel frequency, such that the at least two constant amplitude, phase modulated drive signals correspond to the information modulation for the corresponding radio frequency.

10. A transmitter according to Claim 9 wherein the information modulation is at least one of analog voice modulation and digital data modulation.

11. A transmitter according to Claim 10 wherein the digital data modulation is at least one of linear 8-Phase Shift Keying (PSK) and $\pi/4$ Differential Quadrature Phase Shift Keying (DQPSK).

12. A transmitter according to Claim 11 wherein the DQPSK conforms to at least one of the IS-136 and DAMPS cellular radiotelephone standards.

13. A transmitter according to Claim 1 wherein the coupling network comprises a plurality of transformers, each having a primary and a secondary, a respective primary being coupled to a respective output of a respective saturated power amplifier, the secondaries being serially coupled to the common antenna.

14. A transmitter according to Claim 1 wherein the coupling network comprises a plurality of quarter wavelength transmission lines each having first and second ends, a respective first end being coupled to a respective output of a respective saturated power amplifier, the second ends being coupled together to the common antenna.

15. A transmitter according to Claim 1 wherein the coupling network comprises a plurality of discrete inductance-capacitance equivalents of quarter wavelength transmission lines each having first and second ends, a respective first end being coupled to a respective output of a respective saturated power amplifier, the second ends being coupled together to the common antenna.

16. A transmitter according to Claim 15 wherein the plurality of discrete inductance-capacitance equivalents of quarter wavelength transmission lines each comprises an inductor connected between a respective output of a respective saturated power amplifier and the common antenna, and a capacitor connected to the common antenna, to thereby form a π circuit with the output capacitance of the saturated power amplifiers.

17. A transmitter according to Claim 1 wherein the saturated power amplifiers each include bilateral amplifier devices that draw current from a DC power supply and supply current to the DC power supply during operation.

18. A transmitter according to Claim 17 wherein the bilateral amplifier devices comprise at least one of field effect transistors that conduct from source to drain and from drain to source, and bipolar transistors including reverse conduction diodes that conduct in a forward direction through the bipolar transistors and in a reverse direction through the reverse conduction diodes.

19. A transmitter according to Claim 1 in combination with the common antenna to provide a radiotelephone base station.

20. A transmitter for transmitting from a common antenna at a plurality of radio frequencies, a plurality of radio channel frequency signals that are modulated with respective information modulation, the transmitter comprising:

means for generating at least one constant amplitude, phase modulated drive signal at a corresponding radio channel frequency from the respective information modulation such that the at least one constant amplitude, phase modulated drive signal corresponds to the information modulation for the corresponding radio frequency;

means for separately amplifying each of the at least one constant amplitude, phase modulated drive signals to produce a corresponding plurality of amplified output signals; and

means for serially coupling the plurality of amplified output signals to produce a combined signal that is applied to the common antenna, such that the common antenna radiates the plurality of radio channel frequency signals that are modulated with the respective information modulation.

21. A transmitter according to Claim 20 wherein the at least one constant amplitude, phase modulated drive signal is a single constant envelope modulation drive signal and wherein the information modulation is a constant envelope information modulation.

22. A transmitter according to Claim 21 wherein the constant envelope information modulation is at least one of frequency and phase modulation.

23. A transmitter according to Claim 21 wherein the information modulation is at least one of analog voice modulation and digital data modulation.

24. A transmitter according to Claim 23 wherein the analog voice modulation is analog Frequency Modulation (FM).

25. A transmitter according to Claim 23 wherein the digital data modulation is at least one of Continuous Phase Modulation (CPM) and Gaussian Minimum Shift Keying (GMSK).

26. A transmitter according to Claim 24 wherein the analog FM conforms to the AMPS cellular radiotelephone standard.

27. A transmitter according to Claim 26 wherein the GMSK digital data modulation conforms to the GSM cellular radiotelephone standard.

28. A transmitter according to Claim 20 wherein the at least one constant amplitude, phase modulated drive signal is at least two constant amplitude, phase modulated drive signals at the corresponding radio channel frequency, such that the at least two constant amplitude, phase modulated drive signals correspond to the information modulation for the corresponding radio frequency.

29. A transmitter according to Claim 28 wherein the information modulation is at least one of analog voice modulation and digital data modulation.

30. A transmitter according to Claim 29 wherein the digital data modulation is at least one of linear 8-Phase Shift Keying (PSK) and $\pi/4$ Differential Quadrature Phase Shift Keying (DQPSK).

31. A transmitter according to Claim 30 wherein the DQPSK conforms to at least one of the IS-136 and DAMPS cellular radiotelephone standards.

32. A transmitter according to Claim 20 wherein the means for serially coupling comprises a plurality of transformers, each having a primary and a secondary, a respective primary being coupled to a respective amplified output signal, the secondaries being serially coupled to the common antenna.

33. A transmitter according to Claim 20 wherein means for serially coupling comprises a plurality of quarter wavelength transmission lines each having first and second ends, a respective first end being coupled to a respective amplified output signal, the second ends being coupled together to the common antenna.

34. A transmitter according to Claim 20 wherein the means for serially coupling comprises a plurality of discrete inductance-capacitance equivalents of quarter wavelength transmission lines each having first and second ends, a respective first end being coupled to a respective amplified output signal, the second ends being coupled together to the common antenna.

35. A transmitter according to Claim 34 wherein the plurality of discrete inductance-capacitance equivalents of quarter wavelength transmission lines each comprises an inductor connected between a respective amplified output signal and the common antenna, and a capacitor connected to the common antenna, to thereby form a π circuit with the output capacitance of the means for separately amplifying.

36. A transmitter according to Claim 20 wherein the means for separately amplifying includes bilateral amplifier devices that draw current from a DC power supply and supply current to the DC power supply during operation.

37. A transmitter according to Claim 36 wherein the bilateral amplifier devices comprise at least one of field effect transistors that conduct from source to drain and from drain to source, and bipolar transistors including reverse conduction diodes that conduct in a forward direction through the bipolar transistors and in a reverse direction through the reverse conduction diodes.

38. A transmitter according to Claim 20 in combination with the common antenna to provide a radiotelephone base station.

39. A method for transmitting from a common antenna at a plurality of radio frequencies, a plurality of radio channel frequency signals that are modulated with respective information modulation, the method comprising:

generating at least one constant amplitude, phase modulated drive signal at a corresponding radio channel frequency from the respective information modulation such that the at least one constant amplitude, phase modulated drive signal corresponds to the information modulation for the corresponding radio frequency;

separately amplifying each of the at least one constant amplitude, phase modulated drive signals to produce a corresponding plurality of amplified output signals; and

serially coupling the plurality of amplified output signals to produce a combined signal that is applied to the common antenna, such that the common antenna radiates the plurality of radio channel frequency signals that are modulated with the respective information modulation.

40. A method according to Claim 39 wherein the at least one constant amplitude, phase modulated drive signal is a single constant envelope modulation drive signal and wherein the information modulation is a constant envelope information modulation.

41. A method according to Claim 40 wherein the constant envelope information modulation is at least one of frequency and phase modulation.

42. A method according to Claim 40 wherein the information modulation is at least one of analog voice modulation and digital data modulation.

43. A method according to Claim 42 wherein the analog voice modulation is analog Frequency Modulation (FM).

44. A method according to Claim 42 wherein the digital data modulation is at least one of Continuous Phase Modulation (CPM) and Gaussian Minimum Shift Keying (GMSK).

45. A method according to Claim 43 wherein the analog FM conforms to the AMPS cellular radiotelephone standard.

46. A method according to Claim 44 wherein the GMSK digital data modulation conforms to the GSM cellular radiotelephone standard.

47. A method according to Claim 39 wherein the at least one constant amplitude, phase modulated drive signal is at least two constant amplitude, phase

modulated drive signals at the corresponding radio channel frequency, such that the at least two constant amplitude, phase modulated drive signals correspond to the information modulation for the corresponding radio frequency.

48. A method according to Claim 47 wherein the information modulation is at least one of analog voice modulation and digital data modulation.

49. A method according to Claim 48 wherein the digital data modulation is at least one of linear 8-Phase Shift Keying (PSK) and $\pi/4$ Differential Quadrature Phase Shift Keying (DQPSK).

50. A method according to Claim 49 wherein the DQPSK conforms to at least one of the IS-136 and DAMPS cellular radiotelephone standards.